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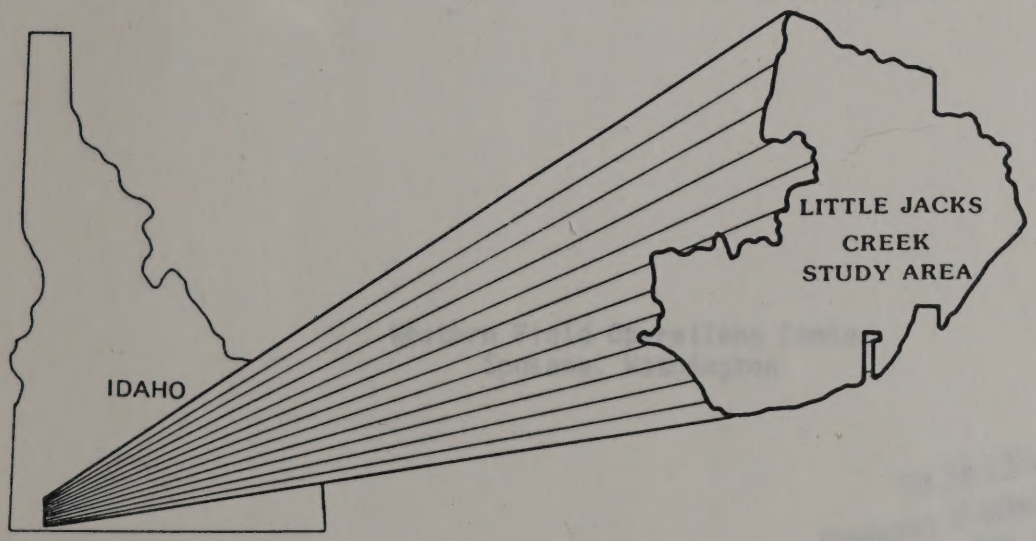
Mineral Resources of the Little Jacks Creek Study Area, Owyhee County, Idaho



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MINERAL RESOURCES OF THE LITTLE JACKS CREEK STUDY AREA, OWYHEE COUNTY, IDAHO

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PREFACE

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and U.S. Bureau of Mines to conduct mineral surveys on U.S. Bureau of Land Management administered land designated as Wilderness Study Areas ". . . to determine the mineral values, if any, that may be present . . . ." Results must be made available to the public and submitted to the President and the Congress. This report presents the results of a Bureau of Mines mineral survey of a portion of the Little Jacks Creek Wilderness Study Area (ID-111-6), Owyhee County, ID.

This open-file report will be summarized in a joint report published by the U.S. Geological Survey. The data were gathered and interpreted by Bureau of Mines personnel from Western Field Operations Center, East 360 Third Avenue, Spokane, WA 99202. The report has been edited by members of the Branch of Mineral Land Assessment at the field center and reviewed at the Division of Mineral Land Assessment, Washington, DC.

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SUMMARY

In 1985, at the request of the U.S. Bureau of Land Management, the U.S. Bureau of Mines studied 34,000 acres of the 58,040-acre Little Jacks Creek Wilderness Study Area (ID-111-6) in order to evaluate the mineralized resources. The study area is located in Owyhee County, ID, about 21 miles southwest from Bruneau. No mining districts are in the study area, nor were any mines or claims recorded or found. The northern half of the area was covered by oil and gas lease applications; all were cancelled prior to 1985. No economic concentrations of minerals were found in the study area.

INTRODUCTION

This report describes the USBM (U.S. Bureau of Mines) portion of a cooperative study with the USGS (U.S. Geological Survey) to evaluate mineral resources and potential of the Little Jacks Creek study area at the request of the BLM (U.S. Bureau of Land Management). The USBM examines individual mines, prospects, claims, and mineralized zones, and evaluates identified mineral and energy resources. The USGS evaluates potential for undiscovered resources based on areal geological, geochemical, and geophysical surveys. Results of the investigations will be used to help determine the suitability of the study area for inclusion into the National Wilderness Preservation System. Although the immediate goal of this and other USBM mineral surveys is to provide data for the President, Congress, government agencies, and the public for land-use decisions, the long-term objective is to ensure the Nation has an adequate and dependable supply of minerals at a reasonable cost.

Setting

The Little Jacks Creek study area, consisting of 34,000 acres of the 58,040-acre Little Jacks Creek WSA (Wilderness Study Area), is located about 21 mi (miles) southwest of Bruneau, ID (figs. 1 and 2). The area is roughly bounded by unimproved roads, plus a pipeline corridor on the east, and is accessible from Idaho Highway 51. From Bruneau, ID, access is south on route 51 for 9 mi, then west on unimproved roads for about 12 mi to a network of roads around and into the study area. It lies immediately west of Big Jacks Creek study area (Winters and Leszcykowski, 1986).

Elevations range from 5,900 ft (feet) near OX Lake to 3,620 ft where Little Jacks Creek exits the study area. The creek enters the study area as a shallow, banked, boggy stream, but within a few miles, it has cut a near-vertical-walled canyon several hundred feet deep for the remainder of its traverse through the area.

The study area is in a semiarid zone, receiving 10 to 20 in. (inches) of precipitation annually, mostly during the winter months. Low brush (sagebrush is dominant) and grasses are typical of the southern Idaho desert.

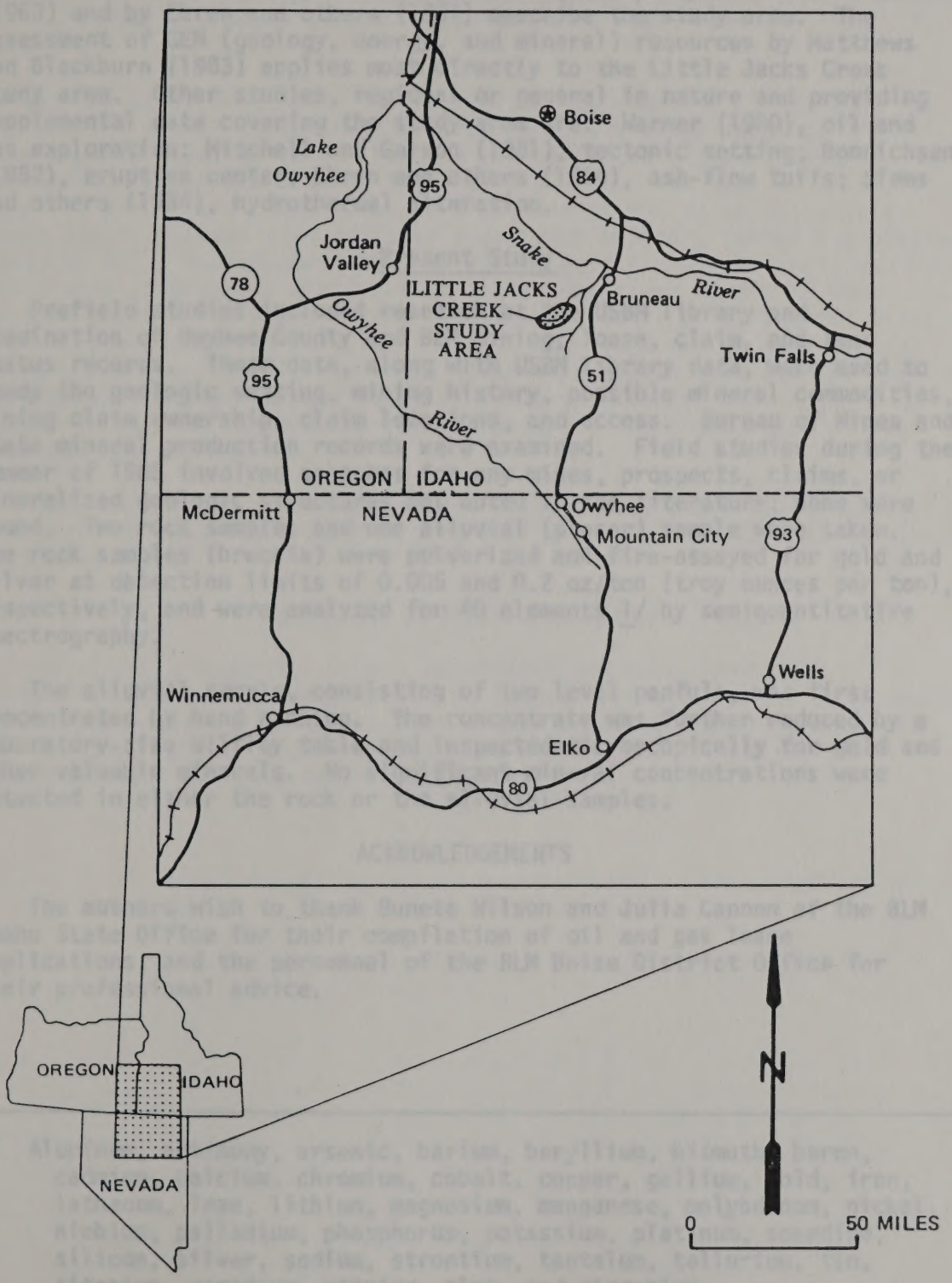

FIGURE 1. – Location of the Little Jacks Creek study area, Owyhee County, ID

Previous Studies

The northern portion of the area is described in a water-supply study by Littleton and Crosthwaite (1957). Geologic maps by Malde and others (1963) and by Ekren and others (1981) describe the study area. The assessment of GEM (geology, energy, and mineral) resources by Matthews and Blackburn (1983) applies most directly to the Little Jacks Creek study area. Other studies, regional or general in nature and providing supplemental data covering the study area are: Warner (1980), oil and gas exploration; Mitchell and Garson (1981), tectonic setting; Bonnichsen (1982), eruptive center; Ekren and others (1984), ash-flow tuffs; Siems and others (1984), hydrothermal alteration.

Present Study

Prefield studies included research at the USBM library and examination of Owyhee County and BLM mining, lease, claim, and land status records. These data, along with USBM library data, were used to study the geologic setting, mining history, possible mineral commodities, mining claim ownership, claim locations, and access. Bureau of Mines and State mineral production records were examined. Field studies during the summer of 1985 involved searches for any mines, prospects, claims, or mineralized geologic structures not noted in the literature; none were found. Two rock samples and one alluvial (placer) sample were taken. The rock samples (breccia) were pulverized and fire-assayed for gold and silver at detection limits of 0.005 and 0.2 oz/ton (troy ounces per ton), respectively, and were analyzed for 40 elements 1/ by semiquantitative spectrography.

The alluvial sample, consisting of two level panfuls, was first concentrated by hand panning. The concentrate was further reduced by a laboratory-size Wilfley table and inspected microscopically for gold and other valuable minerals. No significant mineral concentrations were detected in either the rock or the alluvial samples.

ACKNOWLEDGEMENTS

The authors wish to thank Buneta Wilson and Julia Cannon of the BLM Idaho State Office for their compilation of oil and gas lease applications, and the personnel of the BLM Boise District Office for their professional advice.

1/ Aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, gallium, gold, iron, lathanum, lead, lithium, magnesium, manganese, molybdenum, nickel, niobium, palladium, phosphorus, potassium, platinum, scandium, silicon, silver, sodium, strontium, tantalum, tellurium, tin, titanium, vanadium, yttrium, zinc, and zirconium.

GEOLOGIC SETTING

The Little Jacks Creek study area is in the Owyhee Uplands subprovince of the Columbia Intermontane geologic province (Pansze, 1975. p. 1), informally known as the Owyhee volcanic field (Pansze, 1975, p. 9).

In the study area, only two rock units are exposed. The oldest is the Tuff of Little Jacks Creek of Miocene age, a ledge-forming, flow-layered rhyolite tuff. Four to six cooling units have been identified (Ekren and others, 1982, p. 215-235). The type locality, which is within the study area, is a minimum of 900 ft thick, with at least 980 ft exposed near the area's northern boundary (Ekren and others, 1984, p. 55). Bonnichsen (1982, p. 252) suggests that this tuff was from vents near an eruptive center along the southwestern margin of the western Snake River Plain. Ekren and others (1984, p. 50 and 65) place the eruptive center of the Little Jacks Creek Tuff in the same general area, which they feel is expressed today as a gentle dome without any structural features indicative of cauldera subsidence. The tuff is capped in part by the Miocene Banbury Basalt. The composition of the basement rock is unknown.

Sand and gravel occurrences along Little Jacks Creek and tributaries are small in volume and consist of gravel and sand derived from the local extrusive rocks.

APPRAISAL OF MINERAL RESOURCES

No mines, prospects, claims, or mineralized structures were identified within the study area. No economic concentrations of minerals were detected in any of the rock or placer samples. Prior to June 1985, the northern half of the study area was covered by oil and gas lease applications. All have been cancelled.

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EXPLANATION

Study area boundary

Other study area boundary

Unimproved road

Jeep trail

⊙ Rock sample locality

○ Placer sample locality

Route 51
14 miles

Dead end
2 miles

Route 51
12 miles

Route 51
13 miles

T 7 S
T 8 S

LITTLE JACKS
CREEK
STUDY AREA

1

2

3

Big Sage Reservoir
2 miles

Twin
Lakes

Creek

Pipeline

T 8 S
T 9 S

42°40'

x
5900

Big Sage Reservoir
2 miles

Jacks

OX
Lake

BIG JACKS CREEK
STUDY AREA

Big Sage Reservoir
3 miles

Big Sage Reservoir
3.5 miles

Little

Pipeline

N

R 2 E | R 3 E

Buckhorn Spring
1 mile

116°10'

0 1 2 MILES

FIGURE 2. – Little Jacks Creek study area, Owyhee County, ID

LITTLE JACKS
NINTERS

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